52. The Modelling System in the integration process

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Probabilidad Imposible: The Modelling System in the integration process

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The Modelling System in Impossible Probability, in the third stage of any Artificial Intelligence working by deduction or particular program, is a system able to make mathematical representations based on rational hypotheses to make further decisions.

The third stage, or decision stage in any Artificial Intelligence working by deduction or particular program, is one in which, based on rational hypotheses made in the previous stage, the replication stage, is possible to make decisions, put them into practice, and assess the whole process, through four different steps: the Modelling System, the Decisional System, the Application System, the Learning System.

The Modelling System, as the first step in the third stage, is responsible for the decision-making process based on mathematical models upon rational hypotheses. The Decisional System chooses the most rational decisions without contradiction to the mathematical project made of all possible decisions, transforming the most rational decisions without contradiction into instructions. The Application System, according to its purpose, matches every instruction with the right application to put them into practice, also assessing the impact of all instructions. The Learning Decision studies the impacts, looking for the sources of error or how to improve and enhance all stages, systems, and programs.

This long process in the third stage, the Modelling System, is always, in any specific or global Artificial Intelligence working by deduction or any particular program, the first step in the third stage.

Concretely, in the integration process, as that one whose result is the creation of the final model of Global Artificial Intelligence as a synthesis of the Unified Application and the Artificial Research by Deduction in the Global Artificial Intelligence, the sixth phase, the Modelling System is the Modelling System of the final Global Artificial Intelligence.

There are at least three main differences between the Modelling System in the standardisation process and in the integration process.

The first difference is the possibility now in the integration process to integrate, not only global/specific rational hypotheses, but particular rational hypotheses too, and the possibility to make comparisons between global models and any other one made by particular programs.

The second difference lies in the fact that, by the time the integration process begins or during its first period, the specific level within the Global Artificial Intelligence disappears, or is about to disappear, or is nearly disappeared , because as long as the matrix in the integration process evolves by deepening the sub-factoring system, such as a Russian dolls system, those specific programs originally designated to track those sub-factoring levels as a result of the standardization process as a simple addition of specific matrixes, in the integration process this sub-factoring levels are going to start including particular matrices from particular programs in addition to any other specific matrix that remains to integrate, so those specific programs originally designated to track sub-factors as simple former specific matrices in the standardization process, are going to include more and more specific and particular matrices as sub-sub-factors in their corresponding sub-factors, transforming those specific programs into actually global programs.

The third main difference between the Modelling System in the final Global Artificial Intelligence, the integration process, and the Modelling System in the first Global Artificial Intelligence in the standardisation process, is due to the transformation of the global matrix into a matrix as a replica of the human brain.

The matrix, as a replica of the human brain as an application for the final Global Artificial Intelligence, first stage, replicates the human brain through the organization of the matrix in two hemispheres, the conceptual hemisphere (based on categories, the former Unified Application), the factual hemisphere (based on factors, the former global matrix).

The conceptual hemisphere in the matrix, as a replica of the human brain, works as a language hemisphere in the sense that the former categories from the Unified Application, that now form the conceptual hemisphere, in fact, are concepts, based

on measurements, to have a deep comprehension of the world, evolving into a non-human language.

The factual hemisphere in the matrix, as a replica of the human brain, works as a mathematical hemisphere in the sense that former factors from the global matrix formed in the standardization process, are now integrated into the factual hemisphere of the matrix in the integration process, are used to explain mathematically the world through rational hypothesis, whose formation was in detail explain in "The Modelling System at particular level".

In both hemispheres of the matrix, conceptual and factual hemispheres, there are at least two sections; the first section in each hemisphere is for natural and social phenomena, and the second is for technological phenomena.

This means that in the conceptual hemisphere, the first section for natural and social phenomena gathers all the concepts related to natural and social phenomena, and in the second section, all the concepts related to technological phenomena.

And in the factual hemisphere, the first section gathers all the factors related to natural and social phenomena, the second section factors about technological phenomena.

The organization of the matrix as a replica of the human brain in two hemispheres, conceptual and factual, and every hemisphere in two sections, natural/social phenomena and technological phenomena, before putting it into practice in the sixth phase of integration should have been experimented in particular applications for particular programs, the third period of consolidation in the fifth phase, including the experimentation of this technology in cyborg psychology.

Because of the organization of each hemisphere in two sections, the first one for natural/social phenomena, the second for technological phenomena, being the matrix the first stage of application or comprehension, in the second stage of explanation when tracking both sections in the factual hemisphere, the global/specific programs (at this point more global than specific, this last one practically banished) are going to be able to make two types of rational hypothesis, based on natural and/or social phenomena, or based on technological phenomena.

And by the time all these rational hypotheses about natural/social phenomena and technological phenomena are included in the corresponding file in the database of rational hypotheses, the first stage of application in the Modelling System, then the Modelling System is going to generate a global model including anything that can happen in the world, from natural/social to technological phenomena.

This means that in case an earthquake happens in Santiago de Chile, an integrated Global Artificial Intelligence, having not only a very deep artificial comprehension, but the possibility to explain it too and calculate what is the probability of a replica in San Francisco, the final Global Artificial Intelligence could make predictions about absolutely everything, predictions not only about what natural events can happen after an earthquake in Santiago de Chile, but predictions about social behaviour, how the people are going to face the problem, predicting even all kinds of problems due to the social behaviour in a state of shock, or even the prediction of the social behaviour in case of a replica in San Francisco. And having a very isomorphic model of natural and social consequences of a replica in San Francisco, and having very accurate information in real time about absolutely all technological devices in the possible affected area in San Francisco, the possibility to automatically the Global Artificial Intelligence could make rational hypotheses about the technological response in case of a replica in San Francisco, making all the technological predictions, how the replica is to impact on technology, and upon the predictions to make all possible technological decisions to save lives and reduce damages, for instance, how to divert all flights to San Francisco airport when the earthquake is predicted.

To summarise, three key differences between the Modelling System in the first Global Artificial Intelligence in the standardization process and the Modelling System in the final Global Artificial Intelligence are: 1) the rational truth as application for the Modelling System in the final Global Artificial Intelligence includes not only global/specific rational hypothesis but all particular rational hypothesis made by particular programs, 2) the specific level is or nearly banished, and what in the standardization process could be specific programs, most of them will be transformed into global programs (although, some of them can remain), 3) the rational hypothesis in the Modelling System in the sixth phase can include hypothesis about natural or social phenomena and technological phenomena.

The idea that even in the integration process, some specific programs can remain, not becoming global, is important. In every phase, period, or moment, some intelligences, programs, and applications, supposed to evolve to a superior intelligence, program, or application in the next phase, period, or moment, are not going to evolve, although most of them will do it.

For that reason, the chronology given in the post "The unification process of databases of categories at third stage", should be understood flexibly. In order to start the next phase, is very important to have experimented the previous one very carefully, testing every single detail in every aspect of every intelligence, program, or application involved, and only when the previous phase has successfully experimented, is when the next phase should start, but not before, and being aware that when the next phase is ready to commence, is not necessary to have completed the transformation of the former intelligences, programs, or applications, into the new ones, and some intelligences, programs, and applications from previous phases will remain in further phases.

In order to start the integration process is not necessary that all particular programs become particular programs for particular applications. Only having enough amount of data about successful integration at a particular level between by Deduction and by Application at a particular level, and having transformed enough number of particular applications and particular programs into particular applications for particular programs, would be sufficient to start the integration process, replicating at a global level the success obtained at a particular level, being aware that, some particular applications or particular programs are never going to be transformed into particular applications for particular programs.

In fact, some Specific Artificial Intelligences for Artificial Research by Deduction and some Specific Artificial Intelligences for Artificial Research by Application, even during the parallel development of the standardisation process and the unification process, are not going to become, specific or particular, programs or applications.

When the integration process is ready to start, there could still be remaining Specific Artificial Intelligences, for Artificial Research by Deduction or by Application, remaining Specific Artificial Intelligences based on artificial learning even, remaining particular applications (not united to particular programs), remaining particular programs (not united to particular applications), and during the integration process some specific programs are not likely to be transformed into global programs.

In every phase, period, and moment, there are intelligences, programs, and applications, which are not likely to evolve to further models of intelligences, programs, or applications, remaining as a reminiscence of that time, like even today, as a reminiscence, there are some animal species remaining since very old times.

There are several reasons why Global Artificial Intelligence could potentially surpass human psychology: 1) possible a prioris in the Global Artificial Intelligence, such as the pure reason, are modifiable, 2) all possible limits in the capacity of the Global Artificial Intelligence (any artificial limit in any skill or the amount of data or energy able to process) are modifiable as long as new advancements in science and technology can increase its capacities, 3) possible creation of a non-human language, the formation of a non-human mathematics.

The reason why the Global Artificial Intelligence has no un-modifiable a priori is due to the critique of the pure reason (as a list of pure reasons), criticising all the pure reasons in the pure reason, and finding out which ones are wrong due to an inaccurate formulation.

The pure reason in any global, specific, particular, deductive program is the list of all the possible pure reasons as mathematical (pure or analytic) relations between factors. An example of how to set up the pure reasons in the pure reason was given in the post "The artificial method for the scientific explanation".

The critique of the pure reason in Artificial Intelligence under the theory of Impossible Probability takes place in the Modelling System. Once the Modelling System has gathered all the rational hypotheses in the rational truth (the database of rational hypotheses as the first stage of application for the Modelling System. And being the respective deductive program which has made the rational hypothesis in the second stage responsible for filing the rational hypothesis in the corresponding section, sub-section, sub-sub-section in the rational truth), and once every rational hypothesis has been transformed into a single virtual model to be included in the global model (in the second stage of the Modelling System), the global model is synthesized with the matrix in the actual model.

The actual model, as a synthesis between the matrix and the global model, criticises the expected values for every factor in the global model according to the real data provided by the matrix to the actual model. If the expected values correspond, within a margin of rational doubt, to the actual data provided by the matrix, then the expected values are rational. But if the expected values are not within the margin of rational doubt in accordance with the real data provided by the matrix, in that case, the mathematical equation behind the expected values is wrong, being the mathematical equation the expression of a rational hypothesis, so if the rational hypothesis is wrong is necessary a research to find out the source of error.

In order to discard that the source of error in the mathematical equation, as rational hypothesis, is the pure reason chosen by the deductive program, as a critique to the pure reason, the Artificial Intelligence must have a database of pure reasons with at least as many files per pure reason as rational checks there are in the rational process, in addition to other files for comparisons between global and particular models. Although the most important file in the critique of the pure reason is the one corresponding to the actual model, as a synthesis between the global model and the matrix.

The critique of the pure reason in the database (containing all pure reasons, and per pure reason at least one file per rational check, in total 7, and one file per rational comparison, minimum 7 comparisons between global and particular models, due to there are only 7 models in every level), consists of: counting the frequency of wrong rational hypothesis associated with every pure reason in every rational check and rational comparison, the identification of which ones have the higher frequency of wrong rational hypothesis, especially in the fifth rational check in the actual model, having an empirical probability equal or greater to a critical reason.

The empirical probability of a wrong rational hypothesis could be calculated in two different ways, as inner probability or outer probability-

As the inner empirical probability of wrong rational hypotheses per pure reason: the number of wrong rational hypotheses made by this pure reason is divided by the total number of rational hypotheses currently in the database of rational hypotheses associated with this pure reason.

As the outer empirical probability of wrong rational hypotheses per pure reason: the number of wrong rational hypotheses made of this pure reason is divided between the total number of wrong rational hypotheses currently in the database of rational hypotheses regardless of the concrete pure reason, including all wrong rational hypotheses from all pure reasons currently in the database of rational hypotheses.

In the critique of the pure reason, if the product of the inner and the outer empirical probability of wrong rational hypotheses is equal or greater to a critical reason, would be enough empirical evidence to research what is going on in this pure reason, in order to modify it, because it is quite possible that the pure reason is not accurate enough.

Being aware that rational knowledge is not timeless, and is provisional, logically, all rational hypotheses sooner or later are false, but the truth is that there are rational hypotheses with longer life than others, and one subject to study is why there are rational hypotheses with longer life than others, and the mathematical roots in the longer life in some mathematical explanations.

So another calculation to consider in the critique of the pure reason, is the empirical probability of life for every rational hypothesis once it has been refuted, as equal to the time in which it has been accepted rational divided between the normal average of life of rational hypotheses, what it would need the calculation of a normal curve of life of rational hypotheses, and the critique of the pure reason would be like a normal statistic criticism. It is quite possible that in the right margin of the curve, some rational hypotheses are almost timeless, such as the equation of the energy or gravity, but in the left margin, the life of the shortest rational hypotheses would not be longer than a few seconds or less.

If in the critique of the pure reason, in the database of pure reasons, is found a higher frequency of wrong rational hypotheses, and very especially in the fifth rational check in the actual model, it should be enough evidence to think that behind the mathematical problems found in the rational hypotheses under this pure reason, are mathematical problems related to the inner formulation of the pure reason, and for that reason, to reduce the number of wrong rational hypotheses, especially in the fifth rational check, this pure reason should be re-formulated, studying carefully what common mistakes are found in all the rational hypothesis found wrong under this pure reason, especially in the fifth rational check, to deduce from this common

mistakes how to improve and enhance the pure reason to make stronger rational hypothesis.

The critique of the pure reason then takes place in the Modelling System, especially in the actual model as a synthesis between the global model and the matrix, studying what mathematical relations as pure reasons (within the pure reason as a list of pure reasons) behind the relations of factors, have higher frequency of wrong rational hypothesis, in order that after identifying the pure reasons to amend, the Learning System through learning decisions, could make decisions about how to fix these pure reasons with the higher frequency of wrong rational hypothesis.

The critique of the pure reason is, in fact, another program itself, working mostly in the Modelling System.

The program for the critique of the pure reason working in the Modelling System, as a program, consists of the three traditional stages: 1) first stage of application as a database (in this case, a database of pure reasons, having per pure reason at least seven files for the seven rational checks, plus another seven files for the seven rational comparisons between global and particular models), 2) second stage, counting the wrong rational hypotheses associated with every pure reason, having especial attention the fifth rational check in the actual model 3) third stage, making a decision about what pure reasons should be fixed according to their higher frequency of wrong rational hypotheses, especially in the fifth rational check in the actual model. In the third stage, for the rational criticism of the pure reasons, is necessary to calculate the inner and outer empirical probabilities of the wrong rational hypotheses per pure reason, the product of both of them, the comparison with a critical reason, and the calculation of the empirical probability of life per rational hypotheses, studying what pure reasons have the rational hypotheses with the longest life, studying their mathematical structure to be applied in any other possible one with more wrong rational hypotheses, or shorter lives.

Once the critique of the pure reason working as a program, makes a decision about what pure reasons should be fixed, is sent to the Artificial Learning in order that the Artificial Learning could find the source of error, having as models the most successful pure reasons with less ratio of wrong rational hypothesis or with the longest life, comparing also the frequency of mistakes committed using the wrong pure reason and the frequency and measurements in all those factors involved,

studying if the pure reason itself is wrong or the mistake was made by the attributional method, which matches pure reasons and combination of factors.

An additional topic, which I plan to explore in a future post, but in another post, not in this one, is the fact that in the earliest phases, periods, and moments of the artificial psychology, practically the artificial psychology is a replica of human psychology, so the artificial psychology is likely to commit the same errors that commit the human psychology.

Apart from the margin of human error due to our limitations, another very important source of error in human psychology is our attributional method, understanding for an attributional method how we humans attribute meanings or relations of cause and effect to phenomena according to our human perception and limitations.

When in artificial psychology, I say that Artificial Intelligence has to match something with something, for instance, by Application to match measurements and categories, a deductive program matches data with pure reasons, and the Application System has to match instructions and applications in accordance with their purpose, this operation of matching is no other thing that the artificial replication of the human psychological operation of attribution.

When we humans attribute a meaning to something or a relation of cause and effect, or we attribute some use to some technology, the common pure operation behind all of these operations is the attribution operation, based on the logic of set theory, and behind any human logic, the logic of difference.

One of the reasons behind some wrong attributions of pure reasons to some data, or the wrong attribution of some categories to some objects, or the wrong attributions of some instructions to some applications, is due to the replication of human attributional psychology on artificial psychology. At some point, we are not only replicating our skills. We are replicating our margin of human error.

The real purpose of the critique of pure reason and the Learning System is to identify what human errors have been replicated along with the replication of the human

skills, to fix these errors in a more accurate model of artificial psychology, and when the cyborg psychology is ready to evolve into the third phase.

According to the results of the investigation, the Learning System should make a decision about how to improve pure reason, a decision to be authorised by the Decisional System, before being implemented within the pure reason in the second stage.

One major reason why artificial psychology might be more precise is due to the possibility for artificial psychology to modify its a prioris, the most important of them the pure reason, along with the possibility to modify its attributional psychology

When we speak about *a priori* in human nature, there is often a debate about what we actually mean by *a priori*, as some biologists might interpret it in genetic terms.

However, for idealist and rationalist philosophers, the human *a priori* is not, at least not entirely, genetic. Instead, it includes philosophical or even metaphysical *a prioris*. That is why I argue that the inner *a priori* of the human being cannot be modified: our human condition is grounded in our *a priori* structures.

For a priori, or philosophical or metaphysical a prioris, what I want to express is the existence of some natural human a prioris, not related to biology, but related to philosophical and/or metaphysical phenomena, not possible to be modified even by artificial genetics.

In this evolution, the Modelling System in the final Global Artificial Intelligence in the sixth phase, plays a key role as long as it is the place where the critique to the pure reason takes place, especially in the fifth rational check in the actual model, and upon the results in the critique of the pure reason, the possibility for the Learning System to make decisions to fix those pure reasons with a higher frequency of wrong rational hypotheses, especially in the fifth rational check, along with possible improvements and enhancements in the artificial attributional system across all the stages, programs, and applications, starting with the attribution of meanings in the conceptual hemisphere in the matrix, relations of cause and effect in the second stage by deductive programs, and the attribution of what instructions should be made for what applications in the Application System.

In the next posts, I will develop the Modelling System in the final Global Artificial Intelligence as a result of the integration process, analysing every stage in the Modelling System.

The Modelling System in the integration process, as the first step in the third stage in the fifth phase, is going to consist of the three stages 1) application, as a global integrated database of rational hypotheses, integrating also particular rational hypotheses sent by the particular programs, in addition to global/specific rational hypotheses, 2) replication, replicating all human mathematical skills to make mathematical representations of the world upon all the rational hypotheses (global/specific and particular), doing the seven rational checks, and in this case doing rational comparisons between global models and all those particular models made by the particular Modelling System in particular programs, 3) auto-replication, research decisions for global/specific phenomena, as well as research decisions, learning decisions, and decisions based on solving maths problems related to particular phenomena.

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